

Composition comprising a block polymer and a gelling
agent

The present invention relates to a cosmetic composition for making up or caring for human bodily
5 and facial skin, the scalp included, the lips or epidermal derivatives of human beings, such as the hair, eyebrows, eyelashes or nails, which comprises a particular block polymer.

The composition may be a loose or compact
10 powder, a foundation, a rouge, an eyeshadow, a concealer, a blusher, a lipstick, a lip balm, a lipgloss, a lip pencil, an eye pencil, a mascara, an eyeliner, a nail varnish or even a body makeup product or a skin colouring product.

15 Known compositions exhibit poor staying power over time, particularly as regards the colour. This poor staying power is characterized by an alteration in colour (colour change, fading), generally as a result of interaction with the sebum and/or perspiration
20 secreted by the skin, in the case of foundation and of rouge or eyeshadow, or of interaction with the saliva, in the case of lipsticks. This alteration obliges the user to apply fresh makeup at frequent intervals, which may constitute a loss of time.

25 So-called "non-transfer" makeup compositions for the lips and skin are compositions which have the advantage of forming a deposit which at least in part

is not deposited on the supports with which they are brought into contact (glass, clothing, cigarette, fabrics).

Known non-transfer compositions are generally based on silicone resins and volatile silicone oils and, although exhibiting improved staying properties, have the drawback of leaving on the skin and lips, following evaporation of the volatile silicone oils, a film which over time becomes uncomfortable (giving sensations of drying and tightening), thereby distancing a certain number of women from this type of lipstick.

Known non-transfer compositions contain volatile oils in association with film-forming polymers, which may be soluble in the oils, so as to limit the transfer of colour. The introduction of these polymers in solution in volatile solvents, however, has the disadvantage of leading to formulas which are sometimes of low viscosity, owing in particular to the use of oil of very low viscosity and, in particular, of volatile oils. This low rheology goes hand in hand with awkward and unattractive application, with the added factor that the drying due to the presence of the volatiles may fix these inhomogeneities of deposition.

There continues to be a need for a cosmetic product which should at one and the same time be a non-transfer product with good staying power and good

texture which is easy to apply and leads to a homogeneous deposit.

The composition of the invention may in particular constitute a product for making up the body, 5 the lips or the epidermal derivatives of human beings which has, in particular, non-therapeutic treatment and/or care properties. It constitutes in particular a lipstick or a lipgloss, a rouge or eyeshadow, a tattooing product, a mascara, an eyeliner, a nail 10 varnish, an artificial skin-tanning product or a hair colouring or haircare product.

Surprisingly the inventors have found that a composition comprising a cosmetically acceptable organic liquid medium, at least one particular block 15 polymer and a gelling agent for the said medium exhibits good spreading and lubricity properties and allows a homogeneous makeup result to be obtained. Moreover, the composition is glossy, does not transfer and has good staying power.

20 More specifically the invention provides first a cosmetic composition comprising, in a cosmetically acceptable organic liquid medium, at least one non-elastomeric film-forming ethylenic linear block polymer and a gelling agent for the said organic liquid 25 medium.

The present invention likewise provides a cosmetic composition comprising, in a cosmetically

acceptable organic liquid medium, at least one film-forming ethylenic linear block polymer free from styrene units, and a gelling agent for the said organic liquid medium.

5 The invention also relates to a method of making up the skin and/or the lips and/or the epidermal derivatives which consists in applying to the skin and/or the lips and/or the epidermal derivatives the composition as defined above.

10 The composition according to the invention may be applied to the skin of the face, the scalp and the body, the mucosae such as the lips, the inside of the lower eyelids, and the epidermal derivatives such as the nails, eyebrows, hair, eyelashes, and even body
15 hair.

 Preferably the composition according to the invention is not a rinse-off composition.

 The invention likewise relates to the cosmetic use of the composition defined above for
20 enhancing the homogeneity of makeup on the skin and/or the lips and/or the epidermal derivatives.

 The invention provides finally for the use of a gelling agent in a composition comprising a block polymer as described above for the purpose of obtaining
25 a composition which has good texture, is easy to apply and leads to a deposit which is glossy, does not migrate and/or has good staying power and/or is

homogeneous.

Block polymer:

The composition according to the present invention comprises at least one block polymer. By
5 "block" polymer is meant a polymer comprising at least 2 distinct blocks, preferably at least 3 distinct blocks.

According to one embodiment the block polymer of the composition according to the invention is an
10 ethylenic polymer. By "ethylenic" polymer is meant a polymer obtained by polymerizing monomers comprising an ethylenic unsaturation.

According to one embodiment the block polymer of the composition according to the invention is a
15 linear polymer. By opposition, a polymer having a non-linear structure is, for example, a polymer having a branched, starburst, graft or other structure.

According to one embodiment the block polymer of the composition according to the invention is a
20 film-forming polymer. By "film-forming" polymer is meant a polymer capable of forming, by itself or in the presence of an auxiliary film-forming agent, a continuous and adherent film on a support, particularly on keratin materials.

25 According to one embodiment the block polymer of the composition according to the invention is a non-elastomeric polymer.

By "non-elastomeric polymer" is meant a polymer which, when subjected to a stress intended to stretch it (for example by 30% relative to its initial length), does not return to a length substantially identical to its initial length when the stress ceases.

More specifically the term "non-elastomeric polymer" denotes a polymer having an instantaneous recovery $R_i < 50\%$ and a retarded recovery $R_{2h} < 70\%$ after having undergone 30% elongation. Preferably R_i is $< 30\%$ and R_{2h} is $< 50\%$.

More specifically the non-elastomeric character of the polymer is determined in accordance with the following protocol:

A polymer film is prepared by pouring a solution of the polymer into a Teflon-coated mould and then drying it for 7 days in an environment controlled at $23 \pm 5^\circ\text{C}$ and $50 \pm 10\%$ relative humidity.

This gives a film approximately 100 μm thick, from which rectangular specimens are cut (using a punch, for example) 15 mm wide and 80 mm long.

This sample is subjected to a tensile stress by means of an apparatus sold under the reference Zwick, under the same temperature and humidity conditions as for drying.

The specimens are stretched at a speed of 50 mm/min, and the distance between the jaws is 50 mm, corresponding to the initial length (l_0) of the

specimen.

The instantaneous recovery R_i is determined as follows:

- the specimen is stretched by 30% (ϵ_{\max}),
 5 i.e. about 0.3 times its initial length (l_0);
- the stress is released by applying a return speed equal to the tensile speed, i.e. 50 mm/min, and the residual elongation of the specimen is measured as a percentage, after return to zero stress (ϵ_i).

10 The instantaneous recovery in % (R_i) is given by the formula below:

$$R_i = (\epsilon_{\max} - \epsilon_i) / \epsilon_{\max} \times 100$$

To determine the retarded recovery the residual elongation of the specimen is measured as a
 15 percentage (ϵ_{2h}) 2 hours after return to zero stress.

The retarded recovery in % (R_{2h}) is given by the formula below:

$$R_{2h} = (\epsilon_{\max} - \epsilon_{2h}) / \epsilon_{\max} \times 100$$

Purely by way of indication, a polymer
 20 according to one embodiment of the invention possesses an instantaneous recovery R_i of 10% and a retarded recovery R_{2h} of 30%.

According to another embodiment the block polymer of the composition according to the invention
 25 does not include a styrene unit. By polymer free from styrene units is meant a polymer containing less than 10%, preferably less than 5%, preferably less than 2%,

more preferably less than 1% by weight i) of styrene unit of formula $-\text{CH}(\text{C}_6\text{H}_5)-\text{CH}_2-$ or ii) of substituted styrene unit, for example methylstyrene, chlorostyrene or chloromethylstyrene.

5 According to one embodiment the block polymer of the composition according to the invention is obtained from aliphatic ethylenic monomers. By aliphatic monomer is meant a monomer containing no aromatic group.

10 According to one embodiment the block polymer is an ethylenic polymer obtained from aliphatic ethylenic monomers comprising a carbon-carbon double bond and at least one ester group $-\text{COO}-$ or amide group $-\text{CON}-$. The ester group may be bonded to one of the two
15 unsaturated carbons via the carbon atom or the oxygen atom. The amide group may be bonded to one of the two unsaturated carbons via the carbon atom or the nitrogen atom.

 According to one mode of implementation the
20 block polymer comprises at least one first block and at least one second block.

 By "at least" one block is meant one or more blocks.

 It is specified that, in the text above and
25 below, the terms "first" and "second" blocks in no way condition the order of the said blocks (or sequences) in the structure of the polymer.

According to one mode of implementation the block polymer comprises at least one first block and at least one second block which have different glass transition temperatures (Tgs).

5 In this mode of implementation the first and second blocks may be connected to one another by an intermediate segment having a glass transition temperature between the glass transition temperatures of the first and second blocks.

10 According to one mode of implementation the block polymer comprises at least one first block and at least one second block connected to one another by an intermediate segment comprising at least one constituent monomer of the first block and at least one
15 constituent monomer of the second block.

Preferably the intermediate block is obtained essentially from constituent monomers of the first block and of the second block.

By "essentially" is meant to an extent of at
20 least 85%, preferably at least 90%, more preferably 95% and more preferably still 100%.

Advantageously the intermediate segment comprising at least one constituent monomer of the first block and at least one constituent monomer of the
25 second block of the polymer is a random polymer.

According to one mode of implementation the block polymer comprises at least one first block and at

least one second block which are incompatible in the organic liquid medium of the composition of the invention.

By "blocks incompatible with one another" is meant that the mixture formed from the polymer corresponding to the first block and from the polymer corresponding to the second block is not miscible in the liquid that is in a majority by weight in the organic liquid medium of the composition, at ambient temperature (25°C) and atmospheric pressure (10^5 Pa), for a polymers mixture content greater than or equal to 5% by weight, relative to the total weight of the mixture (polymers and majority organic liquid), with the provisos that

i) the said polymers are present in the mixture in an amount such that the respective weight ratio ranges from 10/90 to 90/10, and that

ii) each of the polymers corresponding to the first and second blocks has an average molecular mass (by weight or by number) equal to that of the block polymer $\pm 15\%$.

In the case where the organic liquid medium comprises a mixture of organic liquids, should two or more liquids be present in identical mass proportions, the said polymers mixture is not miscible in at least one of them.

In the case where the organic liquid medium

comprises a single organic liquid, the said liquid, quite obviously, constitutes the liquid that is in a majority by weight.

By "organic liquid medium" is meant a medium
5 comprising at least one organic liquid, in other words at least one organic compound which is liquid at ambient temperature (25°C) and atmospheric pressure (10^5 Pa). According to one mode of implementation the majority liquid of the organic liquid medium is a
10 volatile or non-volatile oil (fat). Preferably the organic liquid is cosmetically acceptable (acceptable tolerance, toxicology and feel). The organic liquid medium is cosmetically acceptable in the sense that it is compatible with keratin materials, such as the oils
15 or organic solvents commonly employed in cosmetic compositions.

According to one mode of implementation the majority liquid of the organic liquid medium is the polymerization solvent or one of the polymerization
20 solvents of the block polymer, as are described below.

By polymerization solvent is meant a solvent or a mixture of solvents. The polymerization solvent may be selected in particular from ethyl acetate, butyl acetate, alcohols such as isopropanol and ethanol,
25 aliphatic alkanes such as isododecane, and mixtures thereof. Preferably the polymerization solvent is a mixture of butyl acetate and isopropanol, or

isododecane.

Generally speaking, the block polymer may be incorporated into the composition at a high solids content, typically more than 10%, more than 20% and
5 more preferably more than 30% and more preferably still more than 45% by weight relative to the total weight of the composition, while being easy to formulate.

Preferentially the block polymer does not include silicon atoms in its skeleton. By "skeleton" is
10 meant the main chain of the polymer, as opposed to the pendent side chains.

Preferably the polymer according to the invention is not water-soluble, which is to say that the polymer is not soluble in water or in a mixture of
15 water and linear or branched lower monoalcohols having 2 to 5 carbon atoms, such as ethanol, isopropanol or n-propanol, without a change in pH, at an active substance content of at least 1% by weight, at ambient temperature (25°C).

20 According to one mode of implementation the block polymer has a polydispersity index I of greater than 2.

Advantageously the block polymer used in the compositions according to the invention has a
25 polydispersity index I of greater than 2, ranging for example from 2 to 9, preferably greater than or equal to 2.5, ranging for example from 2.5 to 8, and better

still greater than or equal to 2.8, and in particular ranging from 2.8 to 6.

The polydispersity index I of the polymer is equal to the ratio of the weight-average mass M_w to the
5 number-average mass M_n .

The weight-average (M_w) and number-average (M_n) molar masses are determined by liquid chromatography by gel permeation (THF solvent, calibration curve established with standards of linear
10 polystyrene, refractometric detector).

The weight-average mass (M_w) of the block polymer is preferably less than or equal to 300 000, and ranges for example from 35 000 to 200 000, better still from 45 000 to 150 000.

15 The number-average mass (M_n) of the block polymer is preferably less than or equal to 70 000, and ranges for example from 10 000 to 60 000, better still from 12 000 to 50 000.

Each block or sequence of the block polymer
20 is obtained from one type of monomer or from two or more different types of monomers.

This signifies that each block may be composed of a homopolymer or of a copolymer; this copolymer, constituting the block, may in turn be
25 random or alternating.

The glass transition temperatures indicated for the first and second blocks may be theoretical T_g s

determined from the theoretical Tgs of the constituent monomers of each of the blocks, which can be found in a reference manual such as the Polymer Handbook, 3rd ed., 1989, John Wiley, according to the following

5 relationship, called Fox's Law:

$$\frac{1}{T_g} = \sum_i \frac{w_i}{T_{g_i}},$$

w_i being the mass fraction of the monomer i in the block in question and T_{g_i} being the glass
10 transition temperature of the homopolymer of the monomer i .

Unless indicated otherwise, the Tgs indicated for the first and second blocks in the present specification are theoretical Tgs.

15 The difference between the glass transition temperatures of the first and second blocks is generally greater than 10°C, preferably greater than 20°C and more preferably greater than 30°C.

In particular the block polymer comprises at
20 least one first block and at least one second block such that the first block may be selected from:

- a) a block with a Tg of greater than or equal to 40°C,
- b) a block with a Tg of less than or
25 equal to 20°C,
- c) a block with a Tg of between 20 and

40°C,-

and the second block may be selected from a category a), b) or c) different from the first block.

In the present invention, the expression
5 "between ... and ..." is intended to denote a range of values for which the limits mentioned are excluded, and the expression "from ... to ..." and "ranging from ... to ..." is intended to denote a range of values for which the limits are included.

10 a) Block with a Tg of greater than or equal to 40°C

The block with a Tg of greater than or equal to 40°C has, for example, a Tg ranging from 40 to 150°C, preferably greater than or equal to 50°C, ranging for example from 50°C to 120°C, and better
15 still greater than or equal to 60°C, ranging for example from 60°C to 120°C.

The block with a Tg of greater than or equal to 40°C may be a homopolymer or a copolymer.

The block with a Tg of greater than or equal
20 to 40°C may be obtained totally or partly from one or more monomers which are such that the homopolymer prepared from these monomers has a glass transition temperature of greater than or equal to 40°C.

In the case where this block is a
25 homopolymer, it is obtained from monomers which are such that the homopolymers prepared from these monomers have glass transition temperatures of greater than or

equal to 40°C. This first block may be a homopolymer composed of a single type of monomer (for which the Tg of the corresponding homopolymer is greater than or equal to 40°C).

- 5 In the case where the first block is a copolymer, it may be obtained totally or partly from one or more monomers, the nature and concentration of which are selected such that the Tg of the resulting copolymer is greater than or equal to 40°C. The
- 10 copolymer may comprise, for example:
- monomers which are such that the homopolymers prepared from these monomers have Tgs of greater than or equal to 40°C, for example a Tg ranging from 40 to 150°C, preferably greater than or equal to
 - 15 50°C, ranging for example from 50°C to 120°C, and better still greater than or equal to 60°C, ranging for example from 60°C to 120°C, and
 - monomers which are such that the homopolymers prepared from these monomers have Tgs of
 - 20 less than 40°C, selected from monomers with a Tg of between 20 to 40°C and/or monomers with a Tg of less than or equal to 20°C, for example a Tg ranging from -100 to 20°C, preferably less than 15°C, especially ranging from -80°C to 15°C and better still less than
 - 25 10°C, for example ranging from -50°C to 0°C, as described later.

The monomers whose homopolymers have a glass

transition temperature of greater than or equal to 40°C are selected, preferably, from the following monomers, also known as principal monomers:

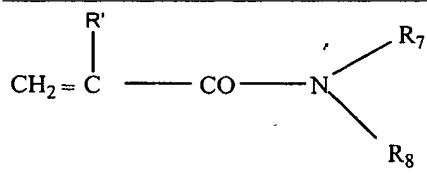
- methacrylates of formula $\text{CH}_2 = \text{C}(\text{CH}_3) - \text{COOR}_1$

5 in which R_1 represents a linear or branched unsubstituted alkyl group containing from 1 to 4 carbon atoms, such as a methyl, ethyl, propyl or isobutyl group, or R_1 represents a C_4 to C_{12} cycloalkyl group;

- acrylates of formula $\text{CH}_2 = \text{CH} - \text{COOR}_2$

10 in which R_2 represents a C_4 to C_{12} cycloalkyl group, such as isobornyl acrylate or a tert-butyl group;

- (meth)acrylamides of formula:



where R_7 and R_8 , which are identical or different, each
15 represent a hydrogen atom or a linear or branched C_1 to C_{12} alkyl group, such as an n-butyl, t-butyl, isopropyl, isohexyl, isooctyl or isononyl group; or R_7 represents H and R_8 represents a 1,1-dimethyl-3-oxobutyl group and R' denotes H or methyl. Examples of monomers that
20 may be mentioned include N-butylacrylamide, N-t-butylacrylamide, N-isopropylacrylamide, N,N-dimethylacrylamide and N,N-dibutylacrylamide;

- and mixtures thereof.

Principal monomers that are particularly
25 preferred are methyl methacrylate, isobutyl

(meth)acrylate and isobornyl (meth)acrylate, and mixtures thereof.

b) Block with a Tg of less than or equal to 20°C

The block with a Tg of less than or equal to 20°C has, for example, a Tg ranging from -100 to 20°C, preferably less than or equal to 15°C, especially ranging from -80°C to 15°C and better still less than or equal to 10°C, for example ranging from -50°C to 0°C.

The block with a Tg of less than or equal to 20°C may be a homopolymer or a copolymer.

The block with a Tg of less than or equal to 20°C may be obtained totally or partly from one or more monomers which are such that the homopolymer prepared from these monomers has a glass transition temperature of less than or equal to 20°C.

In the case where this block is a homopolymer, it is obtained from monomers which are such that the homopolymers prepared from these monomers have glass transition temperatures of less than or equal to 20°C. This second block may be a homopolymer composed of a single type of monomer (for which the Tg of the corresponding homopolymer is less than or equal to 20°C).

In the case where the block with a Tg of less than or equal to 20°C is a copolymer, it may be obtained totally or partly from one or more monomers,

the nature and concentration of which are selected such that the Tg of the resulting copolymer is less than or equal to 20°C.

It may comprise, for example

- 5 - one or more monomers whose corresponding homopolymer has a Tg of less than or equal to 20°C, for example a Tg ranging from -100°C to 20°C, preferably less than 15°C, especially ranging from -80°C to 15°C and better still less than 10°C, for example ranging
10 from -50°C to 0°C, and

- one or more monomers whose corresponding homopolymer has a Tg of greater than 20°C, such as monomers with a Tg of greater than or equal to 40°C, for example a Tg ranging from 40 to 150°C, preferably
15 greater than or equal to 50°C, ranging for example from 50°C to 120°C and better still greater than or equal to 60°C, ranging for example from 60°C to 120°C and/or monomers with a Tg of between 20 and 40°C, as described above.

- 20 Preferably the block with a Tg of less than or equal to 20°C is a homopolymer.

The monomers whose homopolymer has a Tg of less than or equal to 20°C are selected, preferably, from the following monomers, or principal monomer:

- 25 - acrylates of formula $\text{CH}_2 = \text{CHCOOR}_3$,
R₃ representing a linear or branched C₁ to C₁₂ unsubstituted alkyl group, with the exception of the

tert-butyl group, in which one or more heteroatoms selected from O, N and S is (are) optionally intercalated;

- methacrylates of formula $\text{CH}_2 = \text{C}(\text{CH}_3) - \text{COOR}_4$,

5 R_4 representing a linear or branched C_6 to C_{12} unsubstituted alkyl group, in which one or more heteroatoms selected from O, N and S is (are) optionally intercalated;

- vinyl esters of formula $\text{R}_5 - \text{CO} - \text{O} - \text{CH} = \text{CH}_2$

10 where R_5 represents a linear or branched C_4 to C_{12} alkyl group;

- C_4 to C_{12} alkyl vinyl ethers;

- N-(C_4 to C_{12} alkyl) acrylamides, such as N-octylacrylamide;

15 - and mixtures thereof.

The principal monomers that are particularly preferred for the block with a T_g of less than or equal to 20°C are alkyl acrylates in which the alkyl chain contains from 1 to 10 carbon atoms, with the exception
20 of the tert-butyl group, such as methyl acrylate, isobutyl acrylate and 2-ethylhexyl acrylate, and mixtures thereof.

c) Block with a T_g of between 20 and 40°C

The block which has a T_g of between 20 and
25 40°C may be a homopolymer or a copolymer.

The block with a T_g of between 20 and 40°C may be obtained totally or partly from one or more

monomers which are such that the homopolymer prepared from these monomers has a glass transition temperature of between 20 and 40°C.

The block with a Tg of between 20 and 40°C
5 may be obtained totally or partly from monomers which are such that the corresponding homopolymer has a Tg of greater than or equal to 40°C and from monomers which are such that the corresponding homopolymer has a Tg of less than or equal to 20°C.

10 In the case where this block is a homopolymer, it is obtained from monomers (or principal monomers) which are such that the homopolymers prepared from these monomers have glass transition temperatures of between 20 and 40°C. This first block may be a
15 homopolymer composed of a single type of monomer (for which the Tg of the corresponding homopolymer ranges from 20°C to 40°C).

The monomers whose homopolymer has a glass transition temperature of between 20 and 40°C are
20 selected, preferably, from n-butyl methacrylate, cyclodecyl acrylate, neopentyl acrylate and isodecylacrylamide, and mixtures thereof.

In the case where the block with a Tg of between 20 and 40°C is a copolymer, it is obtained
25 totally or partly from one or more monomers (or principal monomers) the nature and concentration of which are selected such that the Tg of the resulting

copolymer is between 20 and 40°C.

Advantageously the block with a Tg of between 20 and 40°C is a copolymer obtained totally or partly from:

5 - principal monomers whose corresponding homopolymer has a Tg of greater than or equal to 40°C, for example a Tg ranging from 40°C to 150°C, preferably greater than or equal to 50°C, ranging for example from 50 to 120°C and better still greater than or equal to
10 60°C, ranging for example from 60°C to 120°C, as described above; and/or

 - principal monomers whose corresponding homopolymer has a Tg of less than or equal to 20°C, for example a Tg ranging from -100 to 20°C, preferably less
15 than or equal to 15°C, especially ranging from -80°C to 15°C and better still less than or equal to 10°C, for example ranging from -50°C to 0°C, as described above, the said monomers being selected such that the Tg of the copolymer forming the first block is between 20 and
20 40°C.

Such principal monomers are selected, for example, from methyl methacrylate, isobornyl acrylate and methacrylate, butyl acrylate and 2-ethylhexyl acrylate, and mixtures thereof.

25 Preferably the proportion of the second block with a Tg of less than or equal to 20°C ranges from 10% to 85%, better still from 20% to 70% and even better

still from 20% to 50% by weight of the polymer.

Preferably each of the first and second blocks comprises at least one monomer selected from acrylic acid, the esters of acrylic acid, (meth)acrylic acid, the esters of (meth)acrylic acid, and mixtures thereof.

Advantageously each of the first and second blocks is obtained totally from at least one monomer selected from acrylic acid, the esters of acrylic acid, (meth)acrylic acid, the esters of (meth)acrylic acid, and mixtures thereof.

However, each of the blocks may contain in minority proportion at least one constituent monomer of the other block.

Thus the first block may contain at least one constituent monomer of the second block, and vice versa.

Each of the first and/or second blocks may comprise, in addition to the monomers indicated above, one or more other monomers known as additional monomers, which are different from the principal monomers mentioned above.

The nature and amount of this or these additional monomer(s) are selected such that the block in which they are present has the desired glass transition temperature.

This additional monomer is selected, for

example, from:

a) hydrophilic monomers such as:

- ethylenically unsaturated monomers

comprising at least one carboxylic or sulphonic acid

5 function, for instance:

acrylic acid, methacrylic acid, crotonic acid, maleic anhydride, itaconic acid, fumaric acid, maleic acid, acrylamidopropanesulphonic acid, vinylbenzoic acid, vinylphosphoric acid, and salts thereof;

10 - ethylenically unsaturated monomers

comprising at least one tertiary amine function, for instance 2-vinylpyridine, 4-vinylpyridine,

dimethylaminoethyl methacrylate, diethylaminoethyl

methacrylate and dimethylaminopropylmethacrylamide, and

15 salts thereof;

- methacrylates of formula $\text{CH}_2 = \text{C}(\text{CH}_3)\text{-COOR}_6$

in which R_6 represents a linear or branched alkyl group containing from 1 to 4 carbon atoms, such as a methyl, ethyl, propyl or isobutyl group, the said alkyl group

20 being substituted by one or more substituents selected from hydroxyl groups (for instance 2-hydroxypropyl methacrylate and 2-hydroxyethyl methacrylate) and halogen atoms (Cl, Br, I or F), such as trifluoroethyl methacrylate;

25 - methacrylates of formula $\text{CH}_2 = \text{C}(\text{CH}_3)\text{-COOR}_9$,

R_9 representing a linear or branched C_6 to C_{12} alkyl group in which one or more heteroatoms selected from O,

N and S is (are) optionally intercalated, the said alkyl group being substituted by one or more substituents selected from hydroxyl groups and halogen atoms (Cl, Br, I or F);

5 - acrylates of formula $\text{CH}_2 = \text{CHCOOR}_{10}$,

R_{10} representing a linear or branched C_1 to C_{12} alkyl group substituted by one or more substituents selected from hydroxyl groups and halogen atoms (Cl, Br, I or F), such as 2-hydroxypropyl acrylate and 2-hydroxyethyl
10 acrylate, or R_{10} represents a C_1 to C_{12} alkyl-O-POE (polyoxyethylene) with repetition of the oxyethylene unit from 5 to 30 times, for example methoxy-POE, or R_{10} represents a polyoxyethylenated group comprising from 5 to 30 ethylene oxide units;

15 b) ethylenically unsaturated monomers comprising one or more silicon atoms, such as methacryloxypropyltrimethoxysilane and methacryloxypropyltris(trimethylsiloxy)silane;

- and mixtures thereof.

20 Additional monomers that are particularly preferred are acrylic acid, methacrylic acid and trifluoroethyl methacrylate, and mixtures thereof.

According to one embodiment, each of the first and second blocks of the block polymer comprises
25 at least one monomer selected from esters of (meth)acrylic acid and optionally at least one additional monomer such as (meth)acrylic acid, and

mixtures thereof.

According to another embodiment, each of the first and second blocks of the block polymer is obtained totally from at least one monomer selected from esters of (meth)acrylic acid and optionally at least one additional monomer such as (meth)acrylic acid, and mixtures thereof.

According to one preferred embodiment, the block polymer is a non-silicone polymer, i.e. a polymer free of silicon atoms.

This or these additional monomer(s) generally represent(s) an amount of less than or equal to 30% by weight, for example from 1% to 30% by weight, preferably from 5% to 20% by weight and more preferably from 7% to 15% by weight, relative to the total weight of the first and/or second blocks.

The block polymer may be obtained by free-radical solution polymerization according to the following preparation process:

- a portion of the polymerization solvent is introduced into a suitable reactor and heated until the adequate temperature for the polymerization is reached (typically between 60 and 120°C),

- once this temperature is reached, the constituent monomers of the first block are introduced in the presence of a portion of the polymerization initiator,

- after a time T corresponding to a maximum degree of conversion of 90%, the constituent monomers of the second block and the rest of the initiator are introduced,

5 - the mixture is left to react for a time T' (ranging from 3 to 6 hours), after which the mixture is cooled to ambient temperature,

- the polymer in solution in the polymerization solvent is obtained.

10 First embodiment

According to a first embodiment, the block polymer comprises a first block with a Tg of greater than or equal to 40°C, as described above in a), and a second block with a Tg of less than or equal to 20°C,
15 as described above in b).

Preferably the first block with a Tg of greater than or equal to 40°C is a copolymer obtained from monomers which are such that the homopolymer prepared from these monomers has a glass transition
20 temperature of greater than or equal to 40°C, such as the monomers described above.

Advantageously the second block with a Tg of less than or equal to 20°C is a homopolymer obtained from monomers which are such that the homopolymer
25 prepared from these monomers has a glass transition temperature of less than or equal to 20°C, such as the monomers described above.

Preferably the proportion of the block with a Tg of greater than or equal to 40°C ranges from 20% to 90%, better still from 30% to 80% and even better still from 50% to 70% by weight of the polymer.

5 Preferably the proportion of the block with a Tg of less than or equal to 20°C ranges from 5% to 75%, preferably from 15% to 50% and better still from 25% to 45% by weight of the polymer.

Thus, according to a first variant, the
10 polymer according to the invention may comprise:

- a first block with a Tg of greater than or equal to 40°C, for example having a Tg ranging from 70 to 110°C, which is a methyl methacrylate/acrylic acid copolymer,

15 - a second block with a Tg of less than or equal to 20°C, for example ranging from 0 to 20°C, which is a methyl acrylate homopolymer, and

- an intermediate block which is a methyl methacrylate/acrylic acid/methyl acrylate copolymer.

20 According to a second variant, the polymer according to the invention may comprise:

- a first block with a Tg of greater than or equal to 40°C, for example ranging from 70 to 100°C, which is a methyl methacrylate/acrylic acid/trifluoroethyl

25 methacrylate copolymer,

- a second block with a Tg of less than or equal to 20°C, for example ranging from 0 to 20°C,

which is a methyl acrylate homopolymer, and

- an intermediate block which is a methyl methacrylate/acrylic acid/methyl acrylate/trifluoroethyl methacrylate random copolymer.

5 According to a third variant, the polymer according to the invention may comprise:

- a first block with a Tg of greater than or equal to 40°C, for example ranging from 85 to 115°C, which is an isobornyl acrylate/isobutyl methacrylate

10 copolymer,

- a second block with a Tg of less than or equal to 20°C, for example ranging from -85 to -55°C, which is a 2-ethylhexyl acrylate homopolymer, and

- an intermediate block which is an isobornyl

15 acrylate/isobutyl methacrylate/2-ethylhexyl acrylate random copolymer.

According to a fourth variant, the polymer according to the invention may comprise:

- a first block with a Tg of greater than or

20 equal to 40°C, for example ranging from 85 to 115°C, which is an isobornyl acrylate/methyl methacrylate

copolymer,

- a second block with a Tg of less than or equal to 20°C, for example ranging from -85 to -55°C,

25 which is a 2-ethylhexyl acrylate homopolymer, and

- an intermediate block which is an isobornyl acrylate/methyl methacrylate/2-ethylhexyl acrylate

random copolymer.

According to a fifth variant, the polymer according to the invention may comprise:

- a first block with a Tg of greater than or
5 equal to 40°C, for example ranging from 95 to 125°C,
which is an isobornyl acrylate/isobornyl methacrylate
copolymer,

- a second block with a Tg of less than or
equal to 20°C, for example ranging from -85 to -55°C,
10 which is a 2-ethylhexyl acrylate homopolymer, and

- an intermediate block which is an isobornyl
acrylate/isobornyl methacrylate/2-ethylhexyl acrylate
random copolymer.

According to a sixth variant, the polymer
15 according to the invention may comprise:

- a first block with a Tg of greater than or
equal to 40°C, for example ranging from 85 to 115°C,
which is an isobornyl methacrylate/isobutyl
methacrylate copolymer,

20 - a second block with a Tg of less than or
equal to 20°C, for example ranging from -35 to -5°C,
which is an isobutyl acrylate homopolymer, and

- an intermediate block which is an isobornyl
methacrylate/isobutyl methacrylate/isobutyl acrylate
25 random copolymer.

According to a seventh variant, the polymer
according to the invention may comprise:

- a first block with a Tg of greater than or equal to 40°C, for example ranging from 95 to 125°C, which is an isobornyl acrylate/isobornyl methacrylate copolymer,

5 - a second block with a Tg of less than or equal to 20°C, for example ranging from -35 to -5°C, which is an isobutyl acrylate homopolymer, and

- an intermediate block which is an isobornyl acrylate/isobornyl methacrylate/isobutyl acrylate

10 random copolymer.

According to an eighth variant, the polymer according to the invention may comprise:

- a first block with a Tg of greater than or equal to 40°C, for example ranging from 60 to 90°C, which is an isobornyl acrylate/isobutyl methacrylate copolymer,

15

- a second block with a Tg of less than or equal to 20°C, for example ranging from -35 to -5°C, which is an isobutyl acrylate homopolymer, and

20 - an intermediate block which is an isobornyl acrylate/isobutyl methacrylate/isobutyl acrylate random copolymer.

The examples which follow illustrate, non-limitatively, polymers corresponding to this first
25 embodiment.

The amounts are expressed in grams.

Example 1: Preparation of a poly(methyl

methacrylate/acrylic acid/methyl acrylate) polymer

100 g of butyl acetate are introduced into a
1 litre reactor and then the temperature is raised so
as to go from ambient temperature (25°C) to 90°C over
5 1 hour.

Subsequently there are added, at 90°C and
over 1 hour, 180 g of methyl methacrylate, 30 g of
acrylic acid, 40 g of butyl acetate, 70 g of
isopropanol and 1.8 g of 2,5-bis(2-ethylhexanoyl-
10 peroxy)-2,5-dimethylhexane (Trigonox® 141 from Akzo
Nobel).

The mixture is held at 90°C for 1 hour.

Subsequently there are introduced into the
above mixture, still at 90°C and over 1 hour, 90 g of
15 methyl acrylate, 70 g of butyl acetate, 20 g of
isopropanol and 1.2 g of 2,5-bis(2-ethylhexanoyl-
peroxy)-2,5-dimethylhexane.

The mixture is held at 90°C for 3 hours, then
diluted in 105 g of butyl acetate and 45 g of
20 isopropanol, and then the whole is cooled.

This gives a solution containing 40% polymer
active substance in the butyl acetate/isopropanol
mixture.

A polymer is obtained which comprises a
25 first, poly(methyl methacrylate/acrylic acid) block
with a Tg of 100°C, a second, polymethyl acrylate block
with a Tg of 10°C, and an intermediate block which is a

methyl methacrylate/acrylic acid/polymethyl acrylate random polymer.

This polymer has a weight-average mass of 52 000 and a number-average mass of 18 000, giving a
5 polydispersity index I of 2.89.

Example 2: Preparation of a poly(isobornyl acrylate/
isobutyl methacrylate/2-ethylhexyl acrylate) polymer

100 g of isododecane are introduced into a 1 litre reactor and then the temperature is raised so
10 as to go from ambient temperature (25°C) to 90°C over 1 hour.

Subsequently there are added, at 90°C and over 1 hour, 120 g of isobornyl acrylate, 90 g of isobutyl methacrylate, 110 g of isododecane and 1.8 g
15 of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane (Trigonox® 141 from Akzo Nobel).

The mixture is held at 90°C for 1.5 h.

Subsequently there are introduced into the above mixture, still at 90°C and over 30 minutes, 90 g
20 of 2-ethylhexyl acrylate, 90 g of isododecane and 1.2 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane.

The mixture is held at 90°C for 3 hours and then the whole is cooled.

This gives a solution containing 50% polymer
25 active substance in isododecane.

A polymer is obtained which comprises a first, poly(isobornyl acrylate/isobutyl methacrylate)

block with a Tg of 80°C, a second, poly-2-ethylhexyl acrylate block with a Tg of -70°C, and an intermediate block which is an isobornyl acrylate/isobutyl methacrylate/2-ethylhexyl acrylate random polymer.

5 This polymer has a weight-average mass of 77 000 and a number-average mass of 19 000, giving a polydispersity index I of 4.05.

Example 3: Preparation of a poly(isobornyl acrylate/methyl methacrylate/2-ethylhexyl acrylate) polymer

10 100 g of isododecane are introduced into a 1 litre reactor and then the temperature is raised so as to go from ambient temperature (25°C) to 90°C over 1 hour.

 Subsequently there are added, at 90°C and
15 over 1 hour, 150 g of isobornyl acrylate, 60 g of methyl methacrylate, 110 g of isododecane and 1.8 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane (Trigonox® 141 from Akzo Nobel).

 The mixture is held at 90°C for 1.5 h.

20 Subsequently there are introduced into the above mixture, still at 90°C and over 30 minutes, 90 g of 2-ethylhexyl acrylate, 90 g of isododecane and 1.2 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane.

 The mixture is held at 90°C for 3 hours and
25 then the whole is cooled.

 This gives a solution containing 50% polymer active substance in isododecane.

A polymer is obtained which comprises a first, poly(isobornyl acrylate/methyl methacrylate) block with a Tg of 100°C, a second, poly-2-ethylhexyl acrylate block with a Tg of -70°C, and an intermediate
5 block which is an isobornyl acrylate/methyl methacrylate/2-ethylhexyl acrylate random polymer.

This polymer has a weight-average mass of 76 500 and a number-average mass of 22 000, giving a polydispersity index I of 3.48.

10 Example 4: Preparation of a poly(isobornyl acrylate/ isobornyl methacrylate/2-ethylhexyl acrylate) polymer

100 g of isododecane are introduced into a 1 litre reactor and then the temperature is raised so as to go from ambient temperature (25°C) to 90°C over
15 1 hour.

Subsequently there are added, at 90°C and over 1 hour, 105 g of isobornyl acrylate, 105 g of isobornyl methacrylate, 110 g of isododecane and 1.8 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane
20 (Trigonox® 141 from Akzo Nobel).

The mixture is held at 90°C for 1.5 h.

Subsequently there are introduced into the above mixture, still at 90°C and over 30 minutes, 90 g of 2-ethylhexyl acrylate, 90 g of isododecane and 1.2 g
25 of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane.

The mixture is held at 90°C for 3 hours and then the whole is cooled.

This gives a solution containing 50% polymer active substance in isododecane.

A polymer is obtained which comprises a first, poly(isobornyl acrylate/isobornyl methacrylate) block or sequence with a Tg of 110°C, a second, poly-2-ethylhexyl acrylate block with a Tg of -70°C, and an intermediate block which is an isobornyl acrylate/isobornyl methacrylate/2-ethylhexyl acrylate random polymer.

10 This polymer has a weight-average mass of 103 900 and a number-average mass of 21 300, giving a polydispersity index I of 4.89.

Second embodiment

According to a second embodiment, the block polymer comprises a first block with a glass transition temperature (Tg) of between 20 and 40°C, in accordance with the blocks described in c), and a second block with a glass transition temperature of less than or equal to 20°C, as described above in b), or a glass transition temperature of greater than or equal to 40°C, as described in a) above.

Preferably the proportion of the first block with a Tg of between 20 and 40°C ranges from 10% to 85%, better still from 30% to 80% and even better still from 50% to 70% by weight of the polymer.

When the second block is a block with a Tg of greater than or equal to 40°C, it is preferably present

in a proportion ranging from 10% to 85% by weight, better still from 20% to 70% and even better still from 30% to 70% by weight of the polymer.

When the second block is a block with a Tg of less than or equal to 20°C, it is preferably present in a proportion ranging from 10% to 85% by weight, better still from 20% to 70% and even better still from 20% to 50% by weight of the polymer.

Preferably the first block with a Tg of between 20 and 40°C is a copolymer obtained from monomers which are such that the corresponding homopolymer has a Tg of greater than or equal to 40°C, and from monomers which are such that the corresponding homopolymer has a Tg of less than or equal to 20°C.

Advantageously the second block with a Tg of less than or equal to 20°C or with a Tg of greater than or equal to 40°C is a homopolymer.

Thus, according to a first variant of this second embodiment, the block polymer may comprise:

- a first block with a Tg of between 20 and 40°C, for example with a Tg of 25 to 39°C, which is a copolymer comprising at least one methyl acrylate monomer, at least one methyl methacrylate monomer and at least one acrylic acid monomer,
- a second block with a Tg of greater than or equal to 40°C, for example ranging from 85 to 125°C, which is a homopolymer composed of methyl methacrylate

monomers, and

- an intermediate block comprising at least one methyl acrylate or methyl methacrylate monomer, and

- an intermediate block comprising methyl methacrylate, at least one acrylic acid monomer and at least one methyl acrylate monomer.

According to a second variant of this second embodiment, the block polymer may comprise:

- a first block with a Tg of between 20 and 40°C, for example with a Tg of 21 to 39°C, which is a copolymer comprising isobornyl acrylate/isobutyl methacrylate/2-ethylhexyl acrylate,

- a second block with a Tg of less than or equal to 20°C, for example ranging from -65 to -35°C, which is a methyl methacrylate homopolymer, and

- an intermediate block which is an isobornyl acrylate/isobutyl methacrylate/2-ethylhexyl acrylate random copolymer.

According to a third variant of this second embodiment, the block polymer may comprise:

- a first block with a Tg of between 20 and 40°C, for example with a Tg of from 21 to 39°C, which is an isobornyl acrylate/methyl acrylate/acrylic acid copolymer,

- a second block with a Tg of greater than or equal to 40°C, for example ranging from 85 to 115°C, which is an isobornyl acrylate homopolymer, and

- an intermediate block which is an isobornyl acrylate/methyl acrylate/acrylic acid random copolymer.

By way of illustration, but without limitation, the polymers corresponding to this second embodiment may be realised as follows.

Example 5: Preparation of a poly(methyl methacrylate/methyl acrylate/acrylic acid) polymer

100 g of butyl acetate are introduced into a 1 litre reactor and then the temperature is raised so as to go from ambient temperature (25°C) to 90°C over 1 hour.

Subsequently there are added, at 90°C and over 1 hour, 50.4 g of methyl methacrylate, 21 g of acrylic acid, 138.6 g of methyl acrylate, 40 g of butyl acetate, 70 g of isopropanol and 1.8 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane (Trigonox® 141 from Akzo Nobel).

The mixture is held at 90°C for 1 hour.

Subsequently there are introduced into the above mixture, still at 90°C and over 1 hour, 90 g of methyl methacrylate, 70 g of butyl acetate, 20 g of isopropanol and 1.2 g of 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane.

The mixture is held at 90°C for 3 hours and then diluted with 105 g of butyl acetate and 45 g of isopropanol, and the whole is then cooled.

This gives a solution containing 40% polymer

active substance in the butyl acetate/
isopropanol mixture.

The polymer obtained comprises a first
poly(methyl acrylate/methyl methacrylate/acrylic acid)
5 block having a Tg of 35°C, a second poly(methyl
methacrylate) block having a Tg of 100°C and an
intermediate block which is a methyl methacrylate/
acrylic acid/polymethyl acrylate random polymer.

Example 6: Preparation of a poly(isobornyl acrylate/
10 isobutyl methacrylate/2-ethylhexyl acrylate) polymer

100 g of isododecane are introduced into a 1
litre reactor and then the temperature is raised so as
to go from ambient temperature (25°C) to 90°C over 1
hour.

15 Subsequently there are added, at 90°C and
over 1 hour, 54 g of isobornyl acrylate, 75.6 g of
isobutyl methacrylate, 50.4 g of 2-ethylhexyl acrylate,
110 g of isododecane and 1.8 g of 2,5-bis(2-
ethylhexanoylperoxy)-2,5-dimethylhexane (Trigonox® 141
20 from Akzo Nobel).

The mixture is held at 90°C for 1.5 h.

Subsequently there are introduced into the
above mixture, still at 90°C and over 1 hour, 120 g of
2-ethylhexyl acrylate, 90 g of isododecane and 1.2 g of
25 2,5-bis(2-ethylhexanoylperoxy)-2,5-dimethylhexane.

The mixture is held at 90°C for 3 hours and
then diluted and the whole is then cooled.

This gives a solution containing 50% of polymer active substance in isododecane.

A polymer is obtained which comprises a first poly(isobornyl acrylate/isobutyl methacrylate/2-ethyl-
5 hexyl acrylate) block having a Tg of 25°C, a second poly-2-ethylhexyl acrylate block having a Tg of -50°C and an intermediate block which is an isobornyl acrylate/isobutyl methacrylate/2-ethylhexyl acrylate random polymer.

10 The composition according to the invention contains preferably from 0.1% to 60% by weight of active substance (or solids) of the polymer, preferably from 0.5% to 50% by weight and more preferably from 1% to 40% by weight.

15 Gelling agent

The composition of the invention also comprises at least one agent for gelling the organic liquid medium of the composition. The gelling agent may increase the viscosity of the organic liquid medium and
20 may lead to a solid or flowable composition when introduced into the said organic liquid medium.

The gelling agent may be selected from gelling agents in polymeric form and gelling agents in mineral form.

25 In one embodiment the gelling agent is not soluble in an aqueous phase or in water.

The gelling agent according to the present

invention is selected preferably from the group consisting of agents which gel via chemical crosslinking and agents which gel via physical crosslinking.

5 *Gelling agents which gel via chemical crosslinking*

According to one embodiment, preference is given to crosslinked elastomeric polyorganosiloxanes of three-dimensional structure, such as MQ silicone resins, polyalkylsesquioxanes, especially polymethyl-
10 sesquioxanes, and resins crosslinked via hydro-silylation. These silicone resins may carry hydrophilic groups, such as polyoxyethylene or copoly(oxyethylene/oxypropylene).

As polyorganosiloxanes which can be used in
15 the invention, mention may be made of the crosslinked elastomeric polyorganosiloxanes described in application EP-A-0 295 886, the disclosure of which is incorporated in this text by reference. According to that application they are obtained by addition reaction
20 and crosslinking, in the presence of a platinum-type catalyst, of at least:

- (a) a polyorganosiloxane having at least two C₂ to C₆ lower alkenyl groups per molecule; and
- (b) a polyorganosiloxane having at least
25 two hydrogen atoms bonded to a silicon atom per molecule. It is also possible to use the polyorganosiloxanes described in US patent 5 266 321, the

disclosure of which is incorporated in this text by reference. According to that patent they are selected in particular from:

- i) polyorganosiloxanes comprising R_2SiO
5 and $RSiO_{1.5}$ units and optionally $R_3SiO_{0.5}$ and/or SiO_2
units, in which the radicals R_1 , independently of one
another, are selected from a hydrogen, an alkyl such as
methyl, ethyl or propyl, an aryl such as phenyl or
tolyl, an unsaturated aliphatic group such as vinyl,
10 the weight ratio of the units R_2SiO to the units $RSiO_{1.5}$
ranging from 1/1 to 30/1;

- ii) polyorganosiloxanes which are
insoluble and swellable in silicone oil, obtained by
addition of a polyorganohydrosiloxane (1) and a poly-
15 organosiloxane (2) having unsaturated aliphatic groups
such that the amount of hydrogen or of unsaturated
aliphatic groups in (1) and (2) respectively ranges
from 1 to 20 mol% when the polyorganosiloxane is non-
cyclic and from 1 to 50 mol% when the polyorgano-
20 siloxane is cyclic. Optionally these polyorgano-
siloxanes can comprise from 1 to 40 oxyalkylene groups,
such as oxypropylene and/or oxyethylene groups.

As examples of polyorganosiloxanes which can
be used according to the invention, mention may be made
25 of those sold or made under the names KSG6 from Shin-
Etsu, Trefil E-505C or Trefil E-506C from Dow Corning,
Gransil from Grant Industries (SR-CYC, SR DMF10, SR-

DC556) or those sold in the form of preconstituted gels (KSG15, KSG17, KSG16, KSG18 and KSG21 from Shin-Etsu, Gransil SR 5CYC gel, Gransil SR DMF 10 gel, Gransil SR DC556 gel, SF 1204 and JK 113 from General Electric.

- 5 A mixture of these commercial products may also be used.

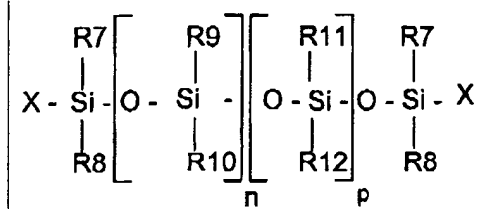
Gelling agents which gel via physical crosslinking

- Gelling agents which gel via physical crosslinking, particularly by molecular agitation, hydrogen interactions or dipolar interactions, and also fat-soluble polymers having liquid crystal groups, are preferred.
- 10

- Gelling agents which gel via molecular agitation are polymers having high molecular weights, preferably greater than 500 000, such as silicone gums.
- 15

The silicone gum may correspond to the

formula:



in which:

- 20 R_7 , R_8 , R_{11} and R_{12} are identical or different and each is selected from alkyl radicals containing from 1 to 6 carbon atoms,
- R_9 and R_{10} are identical or different and each is selected from alkyl radicals containing from 1 to 6

carbon atoms and aryl radicals,

X is selected from alkyl radicals containing from 1 to 6 carbon atoms, a hydroxyl radical and a vinyl radical,

n and p are selected so as to give the silicone gum a
5 viscosity of greater than 100 000 mPa.s, such as
greater than 500 000 mPa.s.

In general, n and p can each take values ranging from 0 to 5000, such as from 0 to 3000.

Among the silicone gums which can be used as
10 a gelling agent according to the invention, mention may
be made of those for which:

- the substituents R_7 to R_{12} and X represent a
methyl group, $p = 0$ and $n = 2700$, such as the product
sold or made under the name SE30 by the company General
15 Electric,

- the substituents R_7 to R_{12} and X
represent a methyl group, $p = 0$ and $n = 2300$, such as
the product sold or made under the name AK 500 000 by
the company Wacker,

20 - the substituents R_7 to R_{12} represent a
methyl group, the substituent X represents a hydroxyl
group, $p = 0$ and $n = 2700$, in the form of a 13%
solution in cyclopentasiloxane, such as the product
sold or made under the name Q2-1401 by the company Dow
25 Corning,

- the substituents R_7 to R_{12} represent a
methyl group, the substituent X represents a hydroxyl

group, $p = 0$ and $n = 2700$, in the form of 13% solution in polydimethylsiloxane, such as the product sold or made under the name Q2-1403 by the company Dow Corning, and

- 5 - the substituents R_7 , R_8 , R_{11} , R_{12} and X represent a methyl group and the substituents R_9 and R_{10} represent an aryl group, such that the molecular weight of the gum is approximately 600 000, for example the product sold or made under the name 761 by the company
10 Rhône-Poulenc (Rhodia Chimie).

Gelling agents which gel the organic liquid medium via hydrogen interactions are selected preferably from the group consisting of:

- aminosilicone polymers having triazinyl
15 groups or pyrimidinyl groups bonded to amino groups of aminosilicones, as described in patent application EP 0 751 170, the disclosure of which is incorporated in this text by reference,
- non-silicone polyamides whose ends carry
20 ester or triamide functions, such as the compounds described in patents and patent applications US 5 783 657, US 6 268 466, WO 01/95871, WO 00/40216, US 2002/0035237 and EP 1 068 856, the disclosure of which is incorporated in this text by reference,
- 25 - polyurethanes, such as the compounds described in patent applications DE 100 22 247 and FR 2 814 365, the disclosure of which is incorporated in

this text by reference, and

- vinyl and/or (meth)acrylic polymers carrying side groups which are able to give rise to mutual hydrogen interactions, such as the compounds described in patent application WO 93/01797, the disclosure of which is incorporated in this text by reference.

Gelling agents may also be selected from the group consisting of:

- 10 - copolymers such as polystyrene-silicone or polyethylene-silicone, described in patents US 6 225 390, US 6 160 054, US 6 174 968 and US 6 225 390, the disclosures of which are incorporated in this text by reference,
- 15 - copolymers comprising a silicone block and another block or graft which is polyvinyllic or poly(meth)acrylic, such as those described in patents US 5 468 477 and US 5 725 882, the disclosures of which are incorporated in this text by reference,
- 20 - polymers or copolymers resulting from the polymerization or copolymerization of an ethylenic monomer containing one or more ethylenic, preferably conjugated, bonds (or dienes),
- polymers or copolymers resulting from
25 the polymerization or copolymerization of an ethylenic monomer; in particular it is possible to use vinyl, acrylic or methacrylic copolymers. The ethylenic

gelling agent may comprise, for example, a styrene (S) block and an alkylstyrene (AS) block, and a block selected from ethylene/butylene (EB), ethylene/propylene (EP), butadiene (B), isoprene (I), acrylate (A) and methacrylate (MA) blocks or a combination of these blocks.

In one embodiment a copolymer comprising at least one styrene block is used as gelling agent. A triblock copolymer, and in particular those of the polystyrene/polyisoprene or polystyrene/polybutadiene type, such as those sold or made under the name "Luvitol HSB" by BASF and those of the polystyrene/copoly(ethylene-propylene) type or, alternatively, those of the polystyrene/copoly(ethylene/butylene) type, such as those sold or made under the brand name "Kraton" by Shell Chemical Co. or Gelled Permethyl 99A by Penreco, may be used. Styrene-methacrylate copolymers may also be used.

As an ethylenic gelling agent which can be used in the composition of the invention, mention may be made, for example, of Kraton G1650 (SEBS), Kraton G1651 (SEBS), Kraton G1652 (SEBS), Kraton G1657X (SEBS), Kraton G1701X (SEP), Kraton G1702X (SEP), Kraton G1726X (SEB), Kraton D-1101 (SBS), Kraton D-1102 (SBS), Kraton D-1107 (SIS); Gelled Permethyl 99A-750, Gelled Permethyl 99A-753-58, Gelled Permethyl 99A-753-59, Versagel 5970 and Versagel 5960 from Penreco, and

OS 129880, OS 129881 and OS 84383 from Lubrizol
(styrene-methacrylate copolymer).

Diblocks or triblocks such as polystyrene-
copoly(ethylene/propylene) or polystyrene-
5 copoly(ethylene/butylene), such as those described in
patent applications WO 98/38981 and US 2002/0055562 are
also included in the present invention.

Gelling agents which gel via dipolar
interactions are selected preferably from the compounds
10 described in documents WO 01/30886 and US 6 228 967,
the disclosures of which are incorporated in this text
by reference. The ionized groups in the said compounds,
for example the zwitterionic groups, create the said
dipolar interactions.

15 Gelling agents such as the fat-soluble
polymers having liquid crystal groups are also
preferred according to the present invention,
particularly fat-soluble polymers whose skeleton is of
silicone, vinyl and/or (meth)acrylic type, and which
20 possess liquid crystal side groups, especially the
compounds described in patent application FR 2 816 503,
the disclosure of which is incorporated in this text by
reference.

In another embodiment the gelling agent may
25 be in mineral form.

The gelling agent may be a modified clay. As
modified clays which can be used, mention may be made

of hectorites modified with an ammonium chloride of a C₁₀ to C₂₂ fatty acid, such as a hectorite modified with distearyldimethylammonium chloride, also known as bentonite of quaternium-18, such as the products sold or made under the names Bentone 34 by the company Rheox, Claytone XL, Claytone 34 and Claytone 40 sold or made by the company Southern Clay, modified clays known under the name quaternium-18 bentonites and benzalkonium bentonites and sold or made under the names Claytone HT, Claytone GR and Claytone PS by the company Southern Clay, clays modified with stearyldimethylbenzoylammonium chloride, known as stearalkonium bentonites, such as the products sold or made under the names Claytone APA and Claytone AF by the company Southern Clay, and Baragel 24, sold or made by the company Rheox.

As other mineral gelling agents which can be used in the invention, mention may be made of silica, such as fumed silica. The fumed silica may have a particle size which may be nanometric or micrometric, for example ranging from approximately 5 nm to 200 nm.

Fumed silicas may be obtained by high-temperature hydrolysis of a volatile silicon compound in an oxyhydrogen flame, producing a finely divided silica. This process allows hydrophilic silicas to be obtained which possess a large number of silanol groups on their surface. The silanol groups may be replaced,

for example, by hydrophobic groups: this then gives a hydrophobic silica. The hydrophobic groups may be:

- trimethylsiloxyl groups, which are obtained in particular by treating fumed silica in the presence of hexamethyldisilazane. The silicas thus treated are known as "silica silylate" according to the CTFA (6th edition, 1995). They are sold or made, for example, under the references "Aerosil R812®" by the company Degussa, and "CAB-O-SIL TS-530®" by the company Cabot;

- dimethylsilyloxyl or polydimethylsiloxane groups, which are obtained in particular by treating fumed silica in the presence of polydimethyldisiloxane or dimethyldichlorosilane. The silicas thus treated are known as "silica dimethylsilylate" according to the CTFA (6th edition, 1995). They are sold or made, for example, under the references "Aerosil R972®" and "Aerosil R974®" by the company Degussa, and "CAB-O-SIL TS-610®" and "CAB-O-SIL TS-720®" by the company Cabot;

- groups derived from the reaction of fumed silica with silane alkylates or siloxanes. These treated silicas are, for example, the products sold or made under the reference "Aerosil R805®" by the company Degussa.

According to the invention a hydrophobic silica, such as a fumed silica, may be used as gelling

agent.

The gelling agent may be used, for example, in concentrations ranging from 0.05% to 35% of the total weight of the composition, for example from 0.5% to 20% or from 1% to 10%.

The composition according to the invention may comprise a hydrophilic medium comprising water or a mixture of water and hydrophilic organic solvent(s) such as alcohols and especially linear or branched lower monoalcohols having from 2 to 5 carbon atoms such as ethanol, isopropanol or n-propanol, and polyols such as glycerol, diglycerol, propylene glycol, sorbitol, pentylene glycol, and polyethylene glycols, or else C₂ ethers and C₂-C₄ aldehydes which are hydrophilic.

The water or the mixture of water and hydrophilic organic solvents may be present in the composition according to the invention in an amount ranging from 0.1% to 99% by weight, relative to the total weight of the composition, and preferably from 10% to 80% by weight.

The composition according to the invention comprises an organic liquid medium which is cosmetically acceptable (acceptable tolerance, toxicology and feel).

According to one particularly preferred embodiment the organic liquid medium of the composition comprises at least one organic solvent, which is the,

or one of the, polymerization solvent(s) of the block polymer as described above. Advantageously the said organic solvent is the majority liquid by weight in the organic liquid medium of the cosmetic composition.

5 According to one embodiment, the organic liquid medium comprises fatty substances which are liquid at ambient temperature (25°C in general). These liquid fatty substances may be animal, vegetable, mineral or synthetic in origin.

10 As fatty substances which are liquid at ambient temperature, often called oils, which can be used in the invention mention may be made of:
hydrocarbon oils of animal origin, such as perhydosqualene; vegetable hydrocarbon oils, such as
15 liquid triglycerides of fatty acids of 4 to 10 carbon atoms, such as heptanoic or octanoic acid triglycerides, or else sunflower oil, corn oil, soya oil, grape seed oil, sesame oil, apricot oil, macadamia oil, castor oil, avocado oil, caprylic/capric acid
20 triglycerides, jojoba oil, karite butter; linear or branched hydrocarbons, of mineral or synthetic origin, such as liquid paraffins and derivatives thereof, Vaseline, polydecenes, hydrogenated polyisobutene such as parleam; the synthetic esters and ethers
25 particularly of fatty acids, such as, for example, purcellin oil, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl

erucate, isostearyl isostearate; hydroxylated esters such as isostearyl lactate, octyl hydroxystearate, octyldodecyl hydroxystearate, diisostearyl malate, triisocetyl citrate, and heptanoates, octanoates and
5 decanoates of fatty alcohols; polyol esters such as propylene glycol dioctanoate, neopentyl glycol diheptanoate and diethylene glycol diisononanoate; and pentaerythritol esters; fatty alcohols having 12 to 26 carbon atoms, such as octyldodecanol, 2-butyloctanol,
10 2-hexyldecanol, 2-undecylpentadecanol, and oleyl alcohol; partially hydrocarbon-based and/or silicone-based fluoro oils; silicone oils, such as volatile or non-volatile polydimethylsiloxanes (PDMS) that are linear or cyclic, such as cyclomethicones,
15 dimethicones, optionally including a phenyl group, such as phenyl trimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenylmethyldimethyltrisiloxanes, diphenyldimethicones, phenyldimethicones and polymethylphenylsiloxanes; and mixtures thereof.

20 These oils may be present in an amount ranging from 0.01% to 90%, and better still from 0.1% to 85% by weight, relative to the total weight of the composition.

 The organic liquid medium of the composition
25 according to the invention may also comprise one or more organic solvents which are cosmetically acceptable (acceptable tolerance, toxicology and feel).

These solvents may be generally present in an amount ranging from 0.1% to 90%, more preferably from 10% to 90% by weight, relative to the total weight of the composition, and better still from 30% to 90%.

5 As solvents which can be used in the composition of the invention mention may be made, besides the aforementioned hydrophilic organic solvents, of ketones which are liquid at ambient temperature, such as methyl ethyl ketone, methyl
10 isobutyl ketone, diisobutyl ketone, isophorone, cyclohexanone and acetone; propylene glycol ethers which are liquid at ambient temperature, such as propylene glycol monomethyl ether, propylene glycol monomethyl ether acetate, and dipropylene glycol mono-n-butyl ether;
15 short-chain esters (having 3 to 8 carbon atoms in total), such as ethyl acetate, methyl acetate, propyl acetate, n-butyl acetate and isopentyl acetate; ethers which are liquid at ambient temperature, such as diethyl ether, dimethyl ether or dichlorodiethyl ether;
20 alkanes which are liquid at ambient temperature, such as decane, heptane, dodecane, isododecane and cyclohexane; aromatic cyclic compounds which are liquid at ambient temperature, such as toluene and xylene; and
25 aldehydes which are liquid at ambient temperature, such as benzaldehyde and acetaldehyde, and mixtures thereof.

Besides the block polymer described above, the composition may comprise an additional polymer such

as a film-forming polymer. According to the present invention a "film-forming polymer" is a polymer capable of forming, by itself or in the presence of an auxiliary film-forming agent, a continuous and adherent
5 film on a support, particularly on keratin materials.

Among the film-forming polymers which can be used in the composition of the present invention, mention may be made of synthetic polymers, of free-radical type or polycondensate type, and of polymers of
10 natural origin, and mixtures thereof. As film-forming polymer, mention may be made in particular of acrylic polymers, polyurethanes, polyesters, polyamides, polyureas and cellulosic polymers such as nitro-cellulose.

15 The polymer may be combined with one or more auxiliary film-forming agents. A film-forming agent of this kind may be selected from all of the compounds known to the person skilled in the art as being capable of fulfilling the desired function, and in particular
20 may be selected from plasticizers and coalescers.

The composition according to the invention may include at least one wax. By wax in the sense of the present invention is meant a lipophilic compound
25 which is solid at ambient temperature (25°C), exhibits a reversible solid/liquid state change and has a melting point greater than or equal to 30°C and

possibly up to 120°C.

The melting point of the wax can be measured by means of a differential scanning calorimeter (DSC), an example being the calorimeter sold under the name
5 DSC 30 by the company Mettler.

The waxes may be hydrocarbon waxes, fluoro waxes and/or silicone waxes and may be vegetable, mineral, animal and/or synthetic in origin. In particular the waxes have a melting point of more than
10 25°C and better still more than 45°C.

As wax which can be used in the composition of the invention mention may be made of beeswax, carnauba wax or candelilla wax, paraffin, microcrystalline waxes, ceresin or ozokerite; synthetic
15 waxes such as polyethylene waxes or Fischer-Tropsch waxes, and silicone waxes such as the alkyl- or alkoxy-dimethicones having 16 to 45 carbon atoms.

The nature and amount of the solid fatty substances are a function of the desired mechanical
20 properties and textures. By way of indication the composition may contain from 0% to 50% by weight of waxes, relative to the total weight of the composition, and better still from 1% to 30% by weight.

The composition according to the invention
25 may further comprise one or more colorants selected from water-soluble dyes and pulverulent colorants such as pigments, nacres and flakes, which are well known to

the person skilled in the art. The colorants may be present in the composition in an amount ranging from 0.01% to 50% by weight, relative to the weight of the composition, preferably from 0.01% to 30% by weight.

5 By pigments are meant particles of any form, white or coloured, organic or inorganic, which are insoluble in the physiological medium and are intended for colouring the composition.

 By nacres are meant iridescent particles of
10 any form that are produced in particular by certain molluscs in their shell, or else are synthesized.

 The pigments may be white or coloured, organic and/or inorganic. Among inorganic pigments mention may be made of titanium dioxide, optionally in
15 surface-treated form, zirconium oxide or cerium oxide, and also zinc oxide, iron oxides (black, yellow or red) or chromium oxide, manganese violet, ultramarine blue, chromium hydrate and ferric blue, and metal powders such as aluminium powder and copper powder.

20 Among organic pigments mention may be made of carbon black, D & C pigments, and the cochineal carmine-based lakes of barium, strontium, calcium and aluminium.

 Mention may also be made of effect pigments,
25 such as particles comprising an organic or inorganic, natural or synthetic substrate, for example glass, acrylic resins, polyester, polyurethane, polyethylene

terephthalate, ceramics or aluminas, the said substrate being uncovered or covered with metallic substances such as aluminium, gold, silver, platinum, copper or bronze, or with metal oxides such as titanium dioxide,
5 iron oxide or chromium oxide, and mixtures thereof.

The nacreous pigments may be selected from white nacreous pigments such as titanium-covered mica, or bismuth oxychloride, coloured nacreous pigments such as titanium mica covered with iron oxides, titanium
10 mica covered with, in particular, ferric blue or chromium oxide, titanium mica covered with an organic pigment of the aforementioned type, and also nacreous pigments based on bismuth oxychloride. It is also possible to use interference pigments, especially those
15 which are liquid-crystal pigments or multi-layer pigments.

The water-soluble dyes are, for example, beetroot juice and methylene blue.

The composition according to the invention
20 may further comprise one or more fillers, particularly in an amount ranging from 0.01% to 50% by weight, relative to the total weight of the composition, preferably ranging from 0.01% to 30% by weight. By fillers are meant particles of any form, colourless or
25 white, mineral or synthetic, which are insoluble in the medium of the composition irrespective of the temperature at which the composition is manufactured.

These fillers serve in particular to modify the rheology or texture of the composition.

The fillers may be organic or inorganic and may be in any form, platelet-shaped, spherical or
5 oblong, irrespective of the crystallographic form (for example leaf, cubic, hexagonal, orthorhombic, etc.). Mention may be made of talc, mica, silica, kaolin, polyamide (Nylon®) powders (Orgasol® from Atochem), poly- β -alanine and polyethylene, the powders of
10 polymers of tetrafluoroethylene (Teflon®), lauroyl-lysine, starch, boron nitride, hollow polymeric microspheres such as those of polyvinylidene chloride/acrylonitrile, for instance Expancel® (Nobel Industrie), acrylic acid copolymers (Polytrap® from the
15 company Dow Corning) and silicone resin microbeads (Tospearls® from Toshiba, for example), elastomeric polyorganosiloxane particles, precipitated calcium carbonate, magnesium carbonate and magnesium hydrocarbonate, hydroxyapatite, hollow silica microspheres
20 (Silica Beads® from Maprecos), ceramic or glass microcapsules, metal soaps derived from organic carboxylic acids having 8 to 22 carbon atoms, preferably 12 to 18 carbon atoms, for example zinc stearate, magnesium stearate or lithium stearate, zinc
25 laurate and magnesium myristate.

The composition according to the invention may be in the form in particular of a stick,

suspension, dispersion, solution, gel, emulsion, especially oil-in-water (O/W) or water-in-oil (W/O), or multiple (O/W/O or polyol/O/W or W/O/W), emulsion, or in the form of a cream, paste or mousse, or a vesicle
5 dispersion, particularly of ionic or nonionic lipids, or a two-phase or multi-phase lotion, a spray, powder or paste, especially a flexible paste (in particular a paste having a dynamic viscosity at 25°C of the order of 0.1 to 40 Pa.s at a shear rate of 200 s⁻¹, after 10
10 minutes of measurement in cone/plate geometry). The composition may be anhydrous: for example, it may be an anhydrous paste.

The person skilled in the art will be able to select the appropriate type of formulation, and the
15 method of preparing it, on the basis of his or her general knowledge, taking into account, on the one hand, the nature of the constituents used, and especially their solubility in the vehicle, and, on the other hand, the application envisaged for the
20 composition.

The composition according to the invention may be a makeup composition such as products for the complexion (foundations), rouges, eyeshadows, lipsticks, concealers, blushers, mascaras, eyeliners,
25 eyebrow makeup products, lip pencils, eye pencils, nail products, such as nail varnishes, body makeup products or hair makeup products (hair lacquer or mascara).

The composition according to the invention may also be a facial or bodily skincare product, in particular a sun product or skin colouring product (such as a self-tanning product).

5 The present invention likewise provides a cosmetic kit comprising:

- a container delimiting at least one compartment, the said container being closed by a closing element; and

10 - a composition as described above disposed inside the said compartment.

The container may be in any appropriate form. It may in particular be in the form of a bottle, tube, jar, case, box, sachet or carton.

15 The closing element may be in the form of a removable stopper, a lid, a cap, a tear-off strip or a capsule, particularly of the type comprising a body attached to the container and a cover cap articulated on the body. It may also be in the form of an element
20 for selectively closing the container, particularly a pump, valve or valve flap.

The container may be combined with an applicator, particularly in the form of a brush comprising an arrangement of bristles held by a twisted
25 wire. A twisted brush of this kind is described in particular in patent US 4 887 622. It may also be in the form of a comb comprising a plurality of

application elements, obtained in particular from moulding. Combs of this kind are described, for example, in patent FR 2 796 529. The applicator may be in the form of a fine brush, as described, for example, 5 in patent FR 2 722 380. The applicator may be in the form of a block of foam or elastomer, a felt or a spatula. The applicator may be free (tuft or sponge) or of one piece with a rod carried by the closing element, as described, for example, in patent US 5 492 426. The 10 applicator may be of one piece with the container, as described, for example, by patent FR 2 761 959.

The product may be accommodated directly in the container, or indirectly. By way of example, the product may be arranged on an impregnated support, 15 particularly in the form of a wipe or pad, and arranged (in unitary or plural form) in a box or in a sachet. A support of this kind, incorporating the product, is described for example in patent application WO 01/03538.

20 The closing element may be coupled to the container by screwing. Alternatively the coupling between the closing element and the container is performed other than by screwing, in particular via a bayonet mechanism, by snap-fastening, gripping, 25 welding, adhesive bonding, or by magnetic attraction. By "snap-fastening" is meant, in particular, any system involving the traversal of a bead or cord of material

by elastic deformation of a portion, particularly of the closing element, followed by return to the elastically unstressed position of the said portion after the traversal of the bead or cord.

5 The container may be at least partly made of thermoplastic material. Examples that may be mentioned of thermoplastic materials include polypropylene and polyethylene.

 Alternatively the container is made of a non-
10 thermoplastic material, particularly of glass or of metal (or alloy).

 The container may be one with rigid walls or may have deformable walls, particularly in the form of a tube or tubular bottle.

15 The container may include means intended for distributing, or facilitating the distribution of, the composition. By way of example, the container may have walls which are deformable so as to allow the composition to exit in response to a positive pressure
20 inside the container, this positive pressure being brought about by elastic (or non-elastic) squeezing of the container's walls. Alternatively, and particularly when the product is in the form of a stick, the product may be driven by a piston mechanism. Still in the case
25 of a stick, particularly a makeup product stick (lipstick, foundation, etc.), the container may include a mechanism, especially a rack mechanism, or one with a

threaded rod, or with a helical groove, which is capable of displacing a stick in the direction of the said opening. A mechanism of this kind is described for example in patent FR 2 806 273 or in patent FR 2 775 566. A mechanism of this kind for a liquid product is described in patent FR 2 727 609.

The container may be composed of a carton with a base delimiting at least one housing accommodating the composition, and a lid, particularly a lid articulated on the base, which is capable of covering the said base, at least in part. A carton of this kind is described for example in patent application WO 03/018423 or in patent FR 2 791 042.

The container may be equipped with a drainer arranged in the region of the opening of the container. A drainer of this kind allows the applicator to be wiped and optionally allows the rod, which may be of one piece with it, to be wiped. A drainer of this kind is described for example in patent FR 2 792 618.

The composition may be at the atmospheric pressure inside the container (at ambient temperature) or may be in pressurized form, particularly by means of a propellant gas (aerosol). In the latter case the container is equipped with a valve (of the type used for aerosols).

The content of the patents or patent applications cited above is incorporated by reference

into the present application.

The examples which follow illustrate, without limitation, the compositions according to the invention.

5 Example 7: Liquid lipstick

INGREDIENTS	% BY MASS
Polymer from Example 4	50.0
Silica (Aerosil R 972®, Degussa)	5.0
Isododecane gelled with an ethylene/ propylene/styrene copolymer and a butylene/ethylene/styrene copolymer (Versagel® MD 970, Penreco)	7.0
Hydrogenated polyisobutene	2.1
Octyldodecanol	0.9
Phenyltrimethicone (DC 556, 20 cSt, Dow Corning)	2.1
Isododecane	28.3
Vinylpyrrolidone/1-eicosene copolymer (Antaron V-220®, ISP)	1.2
Pigments	3.0
Perfume	qs

The formula exhibits a much greater viscosity than the reference without gelling agent. It can also be applied without difficulty using a foam applicator,
 10 and leads to a homogeneous deposit.

Example 8: Sun composition

Ingredients	(% by weight)
Glycerol	6
Propylene glycol	6
Acrylates/C ₁₀ -C ₃₀ alkyl acrylate copolymer PEMULEN TR-2 (Noveon)	0.3
Ammonium polyacryloyldimethyltaurate polymer (HOSTACERIN AMPS - Clariant)	0.3
Cyclohexasiloxane (DOW CORNING 246 FLUID - Dow Corning)	6
Xanthan gum RHODICARE XC (Rhodia)	0.1
Terephthalylidene dicamphor sulphonic acid (MEXORYL SX - Chimex)	1.5
Triethanolamine	qs
Octocrylene (UVINUL N539 - BASF)	10
Butylmethoxydibenzoylmethane (Parsol 1789 - Roche Vitamines)	2.5
Drometrizole trisiloxane (MEXORYL XL - Chimex)	1.5
C ₁₂ -C ₁₅ alkyl benzoate (FINSOLV TN - Witco)	4
Polymer from Example 3	1
Triethanolamine	0.35
Preservative and sequestrant	qs
Water	qs 100

Example 9: Nail varnish

	Polymer from Example 1	23.8 g of AS
	Butyl acetate	24.99 g
	Isopropanol	10.71 g
5	Hexylene glycol	2.5 g
	DC RED 7 Lake	1 g
	Hectorite modified with stearyldimethyl- benzylammonium chloride (Bentone® 27V from Elementis)	1.3 g

10 **Example 10: Mascara composition**

	Beeswax	8 g
	Paraffin wax	3 g
	Carnauba wax	6 g
	Hectorite modified with distearyldi- methylbenzylammonium chloride (Bentone® 38V from Elementis)	5.3 g
15	Propylene carbonate	1.7 g
	Filler	1 g
	Pigments	5 g
20	Polymer from Example 2	12 g of AS
	Isododecane	qs 100

Example 11: Mascara composition

	Beeswax	8 g
	Paraffin wax	3 g
25	Carnauba wax	6 g
	Hectorite modified with distearyldi- methylbenzylammonium chloride (Bentone®	5.3 g

38V from Elementis)

	Propylene carbonate	1.7	g
	Filler	1	g
	Pigments	5	g
5	Polymer from Example 4	12	g of AS
	Isododecane	qs	100

Example 12: Nail varnish

	Polymer from Example 5	23.8	g of AS
	Butyl acetate	24.99	g
10	Isopropanol	10.71	g
	Hexylene glycol	2.5	g
	DC RED 7 Lake	1	g
	Hectorite modified with stearyldimethyl- benzylammonium chloride (Bentone® 27V	1.3	g
15	from Elementis)		
	Ethyl acetate	qs	100 g

Example 13: Mascara composition

	Beeswax	8	g
	Paraffin wax	3	g
20	Carnauba wax	6	g
	Hectorite modified with distearyldi- methylbenzylammonium chloride (Bentone®	5.3	g
	38V from Elementis)		
	Propylene carbonate	1.7	g
25	Filler	1	g
	Pigments	5	g
	Polymer from Example 6	12	g of AS

70

Isododecane

qs 100